Release Notes

HP StorageWorks Linux Kit for Enterprise Virtual Array

Product Version: 3.0E

Fourth Edition (July 2004)

Part Number: AV-RUHYF-TE

This document contains the most recent product information about the HP StorageWorks Linux Kit V3.0E used for integrating host servers with the StorageWorks Enterprise Virtual Array (VCS version 3.020).

For the latest version of the Linux Release Notes and other Linux documentation, access the HP storage web site at http://www.hp.com/country/us/eng/prodserv/storage.html.

HP StorageWorks Linux Kit for Enterprise Virtual Array Release Notes
Edition (July 2004)
Part Number: AV-RUHYF-TE

About this document

This section covers the following topics:

Release Notes information

These release notes cover the following topics:

Intended audience

This document is intended to assist customers who purchased the StorageWorks Enterprise Virtual Array and the associated StorageWorks Operating System kits. Other associated software packages are:

- StorageWorks Virtual Controller Software Package V3.020 for Dual HSV Controllers
- StorageWorks Snapshot for Virtual Controller Software V3.020 for Dual HSV Controllers

This document is also intended for use by HP Customer Service personnel responsible for installing and maintaining designated devices associated with this storage system.

Conventions

The following conventions are used throughout this document:

- Unless otherwise specified, all references to VCS V3.020 refer to the software package (kit) and documentation. These software packages and documentation support VCS V3.020.
- *The System Software for Enterprise Virtual Array* is the storage system software that contains Virtual Controller Software (VCS), Environmental Monitoring Unit (EMU) firmware, programmable component images, diagnostics, and message files. This storage system software is usually represented by a four-digit number like V3.020.
- Unless otherwise specified, all references to an HSV110 controller or an HSV110 controller pair should be interpreted as the HSV110 or HSV100 controller or controller pair.
- Unless otherwise specified, all references to the Enterprise Storage System or storage system should be interpreted as the EVA5000 or the EVA3000.
- Unless otherwise specified, all references to rack should be interpreted as the 9000-Series Enterprise Storage System Rack.
- Unless otherwise specified, all licensing references to host ID should be interpreted as the storage system world wide name (WWN).
- Unless otherwise specified, all references to the management appliance should be interpreted as the HP StorageWorks Management Appliance.
- Unless otherwise specified, all references to a single instance of a management agent should be interpreted as the HP StorageWorks Command View EVA.
- The term fabric means Fibre Channel Switched (FC-SW) connectivity.

New features

This section briefly describes new features and changes that are supported by the version 3.0E release of the platform kit.

New features for version 3.0E

The following are major enhancements included in the V3.0E release of the platform kit:

- Support for Red Hat Enterprise Linux 3.0, Update 2
- Support for Red Hat Advanced Server 2.1, Update 4
- Support for v3.2 version of SSSU compatible with VCS 3.020
- New scripted RPM, hp_qla2x00src. The hp_qla2x00src RPM compiles the driver on the host server during the RPM install.
- New source RPM, hp_qla2x00
- Support for QLogic failover.
- Support for 32-bit SuSE and Redhat on the Opteron platform (x86_64)

Enterprise Virtual Array storage system

This document contains the most recent product information about the Enterprise Virtual Array. An Enterprise Virtual Array storage system consists of the following:

- One pair of HSV110 controllers.
- An array of physical disk drives that the controller pair controls. The disk drives are located in drive enclosures that house the support systems for the disk drives.
- Associated physical, electrical, and environmental systems.
- Command View EVA, which is the graphical interface to the storage system. Command View EVA software resides on the management appliance and is accessed through a browser.
- Management appliance, switches, and cabling.
- At least one host attached through the fabric.

Enterprise Virtual Array system software

The HP StorageWorks Virtual Controller Software (VCS) V3.020 included in the software kit provides storage software capability for the HSV110 controller.

Enterprise Virtual Array documentation

The Enterprise *Virtual Array Catalog of Associated Documentation* is included on the HP Technical Documentation page. You can display a comprehensive list of Enterprise Virtual Array documentation as well as documentation for products that may be required to operate your storage system. To access the technical documentation, go to

http://h18006.www1.hp.com/products/storageworks/enterprise/documentation.html

Support release information

For future product support release information, visit

http://h18006.www1.hp.com/storage/index.html

This web site provides downloads for storage products.

Supported configurations

Refer to the *Enterprise Virtual Array Quick Specs* for supported configurations. The *HP StorageWorks SAN Design Reference Guide* is a detailed guide for SAN configurations and is available at

http://h18004.www1.hp.com/products/storageworks/san/documentation.html

Supported operating systems

The Enterprise Virtual Array storage system is compatible with the following operating systems:

- Tru64 UNIX
- Windows NT/Windows 2000/Windows Server 2003 (32- and 64-bit)
- OpenVMS
- Sun Solaris
- HP-UX
- IBM AIX
- Linux
- Novell NetWare

Table 1 lists the operating system's specifications.

Note: Table 1 contains current minimum level operating system specifications at the time of the Enterprise Virtual Array V3.020 release. Some component versions may change due to revision. For the latest information, go to http://h18006.www1.hp.com/storage/index.html

Table 1: Operating Systems Specifications

Platform	OS version	*Kernel	FCA (HBA)	Adapter BIOS	Adapter driver
X86 Red Hat EL [ES/AS]	2.1	2.4.9-e38 2.4.9-e38smp 2.4.9-e38 enterprise 2.4.9-e.40 2.4.9-e.40smp 2.4.9-e.40enterprise 2.4.9-e.41 2.4.9-e.41smp 2.4.9-e.41enterprise	FCA2214 281541-B21 FCA2214DC 321835-B21 BL20P FC Mezzanine card BL40P FC Mezzanine card	1.34	7.00.03
X86 Red Hat EL [ES/AS/WS]	3	2.4.21-9.EL 2.4.21-9.ELsmp 2.4.21-9.0.1.EL 2.4.21-9.0.1.ELsmp 2.4.21-15.EL 2.4.21-15.Elsmp 2.4.21-15.0.2.EL 2.4.21-15.0.2.ELsmp	FCA2214 281541-B21 FCA2214DC 321835-B21	1.34	7.00.03
X86 SUSE Linux Enterprise Server and Standard Server	8	2.4.21-128-itanium2-smp 2.4.21-128-itanium2 2.4.21-215-itanium2-smp 2.4.21-215-itanium2	FCA2214 281541-B21 FCA2214DC 321835-B21	1.34	7.00.03
X86 SUSE Linux Enterprise Server	7	2.4.7-4GB 2.4.7-64GB-smp 2.14.18-4GB 2.14.18-64GB-smp	FCA2214 281541-B21 FCA2214DC 321835-B21	1.34	6.04.00
IA64 Red Hat EL [ES/AS]	2.1	2.4.18-e.41 2.4.18-3.4-smp 2.4.18-e.43 2.4.18-e.43-smp	A6826A	1.34	7.00.03
IA64 Red Hat EL [ES/AS/WS]	3	2.4.21-9.0.1.EL 2.4.21-9.0.1.EL-smp 2.4.21-15.EL 2.4.21-15.EL-smp 2.4.21-15.0.2.EL 2.4.21-15.0.2.ELsmp	A6826A	1.34	7.00.03

Table 1: Operating Systems Specifications

Platform	OS version	*Kernel	FCA (HBA)	Adapter BIOS	Adapter driver
IA64 SUSE Linux Enterprise Server and Standard Server	8	2.4.21-112-itanium2 2.4.21-112-itanium2 -smp 2.4.21-198 2.4.21-215-itanium2, 2.4.21-215-itanium2 -smp 2.4.21-223-itanium2 2.4.21-223-itanium2-smp	A6826A	1.34	7.00.03
X86_64 Red Hat EL [ES/AS]	2.1	2.4.9-e40 2.4.9-e40smp 2.4.9-e40enterprise 2.4.9-e41 2.4.9-e41smp	FCA2214 281541-B21 FCA2214DC 321835-B21 EL BL20P FC Mezzanine card BL40P FC Mezzanine card	1.34	7.00.03
X86_64 Red Hat EL [AS/ES/WS]	3	2.4.21-15.EL 2.4.21-15.ELsmp 2.4.21-15.0.2.EL 2.4.21-15.0.2.ELsmp	FCA2214 281541-B21 FCA2214DC 321835-B21	1.34	7.00.03
X86_64 SuSE Linux Enterprise and Standard server	8	2.4.21-215 2.3.1-215-smp	FCA2214 281541-B21 FCA2214DC 321835-B21	1.34	7.00.03

Table 2 details the Linux Storage System Attachments

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Table 2: Platform/Storage System Attachment

Platform or Operating System	Platform HBA SAN Attachment	Secure Path or QLogic Multi-Path Support	Enterprise Virtual Array SAN Attachment	EMA/ESA 12000, EMA 16000, MA/RA8000, MA6000 Storage System SAN Attachment
X86 SuSE Linux Enterprise Server 7 SuSE Linux Enterprise and Standard Server 8 RedHat EL 3 [ES/AS/WS] Red Hat EL 2.1 [ES/AS] **ia64** Red Hat EL 2.1 [ES/AS SuSE Linux Enterprise and Standard Server 8, Red Hat EL 3 ES/AS/WS] **X86_64** Red Hat EL 2.1 [ES/AS] Red Hat EL 3 [AS/ES/WS] SuSE Linux Enterprise and Standard server 8	FCA2214 FCA2214DC A6826A	Yes Yes Yes	Single-Path Multi-path	F-Port using FABRIC topology Transparent or Multiple-path Failover

Switch support

This kit supports the Fibre Channel switches and firmware versions listed in the *HP StorageWorks SAN Design Reference Guide* at http://h18000.www1.hp.com/products/storageworks/san/documentation.html

Note: HP recommends that you do not mix switch firmware versions in your SAN. It is considered a best practice to uniformly upgrade all switches in the SAN.

Multiple path support

Linux with EVA storage requires the installation of StorageWorks Secure Path or Multi-path software to achieve high availability multiple path capability. Secure Path is licensed on a per-host basis. Refer to the HP StorageWorks Enterprise Virtual Array 5000 specifications page for Secure Path versions at

http://h18006.www1.hp.com/products/storageworks/enterprise/specifications.html

For detailed multi-path information, refer to the *HP StorageWorks Using the QLogic 7.00.03 Driver for Single-path or Multi-path Failover Mode on Linux Systems application note*.

Note: SLES8 with kernels 198 and 215 are not supported with Secure Path. Refer to your HP Representative for specific Secure Path or multiple-path configuration information.

Operating constraints

Any operating constraints specific to the Enterprise Virtual Array hardware and Command View EVA can be found in their respective release notes.

Failover/failback

Failback preference settings for the HSV controllers are specific to the operating system. Refer to the Enterprise Virtual Array hardware release notes for details.

Avoiding problem situations

The following sections describe problems that may arise during platform kit operation and their solutions.

Command View EVA

The Command View EVA release notes contain information on problems pertaining to Command View EVA.

Enterprise Virtual Array version 3.020 hardware

The hardware release notes in your VCS kit contain information on problems pertaining to Enterprise Virtual Array hardware.

Codeload usage

When a maximum configured system is running at maximum load, codeload functionality is not effective due to Secure Path timing constraints. The system may time-out before codeload is complete. Because of this behavior, VCS upgrades should be done during off peak usage.

Avoiding problem situations with the SSSU

Changing comments on a disk enclosure

You cannot use the SSSU to change comments on a disk enclosure. Use Command View EVA to change comments on a disk enclosure. If you try to change a disk enclosure comment in the SSSU, the following error message appears:

```
Error: Invalid Operation
```

Changing the name of a disk enclosure

Changing the name of a disk enclosure is not supported with the SSSU or with Command View EVA. If you try to change a disk enclosure name in the SSSU, the following error message appears:

```
Error: Invalid Operation
```

Enterprise Storage System notes

Cable requirements

When an Enterprise Virtual Array is connected to a 1Gb switch, an SC-to-LC cable is required for host connectivity. Table 3 and Table 4 list the available cables.

Table 3: LC-SC cables

Length	Description	HP part number
2.0 m ± 40 mm	CA ASSY, LC-SC, Optical 2M	187891-002
5.0 m ± 80 mm	CA ASSY, LC-SC, Optical 5M	187891-005
15.0 m ± 150 mm	CA ASSY, LC-SC, Optical 15M	187891-015
30.0 m ± 300 mm	CA-ASSY, LC-SC, Optical 30M	187891-030
50.0 m ± 500 mm	CA-ASSY, LC-SC, Optical 50M	187891-050

Table 4: LC-LC cables

Length	Description	HP part number
2.0 m ± 40 mm	2-meter LC-LC Multi-Mode Fibre Cable	221692-B21
5.0 m ± 80 mm	5-meter LC-LC Multi-Mode Fibre Cable	221692-B22
15.0 m ± 150 mm	15-meter LC-LC Multi-Mode Fibre Cable	221692-B23
30.0 m ± 300 mm	30-meter LC-LC Multi-Mode Fibre Cable	221692-B26
50.0 m ± 500 mm	50-meter LC-LC Multi-Mode Fibre Cable	221692-B27

Host considerations

This section contains information and important reminders about the host servers.

Changing the Proliant BIOS

A setting must be changed in the BIOS of a Proliant server with more than three HBAs installed. If this setting is not changed, you may not be able to see all attached devices. To change the setting, perform the following steps:

1. Press **F1** to access the ROM-Based Setup Utility (RBSU) during POST. This is normally after 5i Disk Array initialization.
2. Choose **System Options>OS Selection>Linux**.
3. Choose **Advanced Options>MPS Table Mode**.
4. Choose **Auto Set Table**.
5. Press **ESC** twice and then press **F10** to save the configuration.

Host type for Linux

For smooth system operation, set the host type for Linux to `Sun Solaris` except in a LifeKeeper Cluster.

Probe-luns and Secure Path

Do not issue the probe-luns command against FCA2214, FCA2214DC, and A6826A adapters while Secure Path is loaded. This causes a kernel panic. An example of this command is as follows:

```
probe-luns -l -i qla2300
```

Selective Storage Presentation (SSP) on SuSE SLES-7

A server reboot is required after using Selective Storage Presentation (SSP) to grant host access to a LUN.

Storage System Scripting Utility for Enterprise Virtual Array

Refer to the *Command View EVA Release Notes* prior to using the Storage System Scripting Utility (SSSU), as SSSU communicates directly with the Command View EVA.